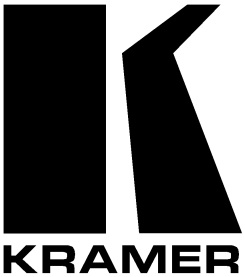
Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-421

4x1 Video Audio Switcher

Contents

1	**Introduction**	**1**
2	**Getting Started**	**1**
3	**Overview**	**1**
4	**Your Video Audio Matrix Switcher**	**2**
5	**Connecting the Video Audio Switcher**	**3**
6	**Technical Specifications**	**4**

Figures

Figure 1: VS-421 4x1 Video Audio Switcher 2
Figure 2: REMOTE PINOUT 3

Tables

Table 1: Front Panel Features and Functions of the VS-421 4x1 Video Audio Switcher 3
Table 2: Rear Panel Features and Functions of the VS-421 4x1 Video Audio Switcher 3
Table 3: VS-421 4x1 Video Audio Switcher Technical Specifications 4

1 Introduction

Dedication by Kramer Electronics since 1981, to the development and manufacture of high quality video/audio equipment, makes the Kramer line an integral part of the finest production and presentation facilities in the world. In recent years, Kramer has redesigned and upgraded most of the line, making the best even better! The Kramer line of professional video/audio electronics is one of the most versatile and complete available, and is a true leader in terms of quality, workmanship, price/performance ratio and innovation. In addition to our high quality switchers and matrices, like the **VS-421** *4x1 Video Audio Switcher*, we also offer excellent distribution amplifiers, presentation processors, interfaces, remote controllers and computer-related products.

Congratulations on purchasing your Kramer **VS-421** *4x1 Video Audio Switcher*. This product is ideal for using with:

- Any professional display system requiring video and audio switching
- CCTV and security, point-of-sale, medical imaging, and rental applications
- Real time camera switching for broadcast and production systems

The package includes the following items:

- **VS-421** *4x1 Video Audio Switcher*
- Power cord
- This user manual
- Kramer concise product catalog/CD

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual

3 Overview

The **VS-421** *4x1 Video Audio Switcher* for composite video and audio stereo signals enables the user to simultaneously route one of the 4 sources to a monitor, projector, or an other receiving device.

In addition, the high performance **VS-421** *4x1 Video Audio Switcher*:

- Is controllable via the front panel buttons or via remote contact-closure

control (by shorting the corresponding pin to ground via a *REMOTE* terminal block connector)

- Includes a switch for choosing the vertical interval mode[1] or the immediate mode[2]
- Includes video bandwidth exceeding 330 MHz, ensuring transparent VGA / XGA performance even in critical broadcast and production applications
- Is useable for SDI (serial digital) and high line rate video signals

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances that may adversely influence signal quality and positioning your **VS-421** *4x1 Video Audio Switcher* in a location free from moisture and away from excessive sunlight and dust

4 Your Video Audio Matrix Switcher

Figure 1 and Tables 1 and 2 define the **VS-421** *4x1 Video Audio Switcher*:

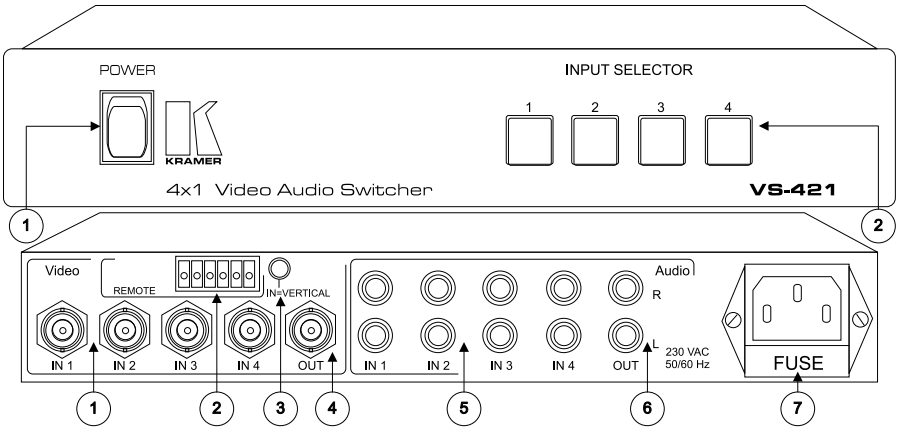


Figure 1: VS-421 4x1 Video Audio Switcher

1 Produces glitch-free transitions when sources share a common reference sync

2 Switching occurs instantly

Table 1: Front Panel Features and Functions of the VS-421 4x1 Video Audio Switcher

#	Feature	Function
1	*POWER* Switch	Illuminated switch supplying power to the unit
2	*INPUT SELECTOR* Buttons	Select the video-audio source (from 1 to 4)

Table 2: Rear Panel Features and Functions of the VS-421 4x1 Video Audio Switcher

#	Feature	Function
1	*VIDEO IN* BNC Connectors	Connects to the video-audio source (from 1 to 4)
2	*REMOTE* Detachable Terminal Block Connector	Connects to a remote unit
3	*IN = VERTICAL* Switch	Pushing in selects the vertical interval mode[1], releasing selects the immediate mode
4	*VIDEO OUT* BNC Connector	Connects to the video-audio acceptor
5	*AUDIO (R* and *L) IN* RCA Connectors	Connects to the video-audio source (from 1 to 4)
6	*AUDIO (R* and *L) OUT* RCA Connectors	Connects to the video-audio acceptor
7	Power Connector with Fuse	230 VAC 50/60 Hz (115 VAC, U.S.A.) power inlet

5 Connecting the Video Audio Switcher

To connect a **VS-421** *4x1 Video Audio Switcher* unit, do the following:

1. Connect up to 4 composite video-audio sources to the appropriate input video connectors and input AUDIO L and AUDIO R connectors.
2. Connect the appropriate output video connector and output AUDIO L and AUDIO R connectors to a composite video-audio acceptor.
3. Connect a remote unit[2], if required, to the *REMOTE* terminal block 6 pin connector, according to the PINOUT in Figure 2:

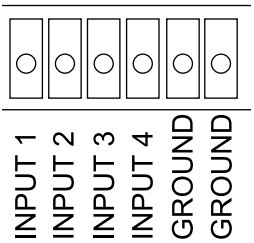


Figure 2: REMOTE PINOUT

4. Connect the power cord to the mains electricity.

1 Between Genlocked sources

2 A mechanical switcher with a common wire for ground or a security dry contact with a separate wire for ground

6 Technical Specifications

Table 3: VS-421 4x1 Video Audio Switcher Technical Specifications

Inputs:	4 composite video / SDI, 1Vpp / 75Ω, on BNCs 4 audio stereo (or balanced mono), +30 dBm typ. on RCAs
Outputs:	1 composite video, 1Vpp / 75Ω on BNCs 1 audio stereo / balanced mono +30 dBm typ. on RCAs
Video Bandwidth:	330 MHz -3dB
Audio Bandwidth:	50 kHz, -1dB
Non Linearity:	0.1%
Diff. Gain:	0.1%.
Diff. Phase:	0.03 Deg
Luma S/N:	>71 dB
K-Factor:	<0.05%
Video Crosstalk:	-65dB (SYNC)
Switching:	Vertical interval or immediate
Control:	4 front-panel touch switches, contact closure
Dimensions:	24.5 cm x 18 cm x 4.5 cm (9.6" x 7" x 1.7"), W, D, H
Power Source:	230 VAC, 50/60 Hz (115VAC, U.S.A.) 4.6 VA
Weight:	1.4 kg. (3.1 lbs.) approx.
Accessories:	Power cord
Options:	19" rack adapter RK-MEDN kit

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for three years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

P/N: 2900- 002032 Rev: 3

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900-002032 REV 3